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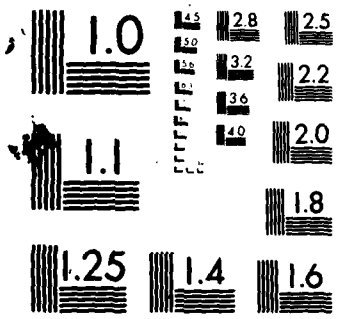

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THE IMPACT OF SOCIAL DESIRABILITY ON ORGANIZATIONAL BEHAVIOR RESEARCH RESULTS: AN EMPIRICAL INVESTIGATION OF ALTERNATIVE MODELS

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Three conceptual and statistical models are developed for the effects of social desirability (SD) response bias on organizational behavior research results. It is demonstrated with illustrative empirical examples how SD can act as a) an unmeasured variable which produces spurious correlations between study variables, b) a suppressor variable which hides relationships, or c) a moderator variable which conditions the relationship between 2 other variables. It is recommended that SD effects be assessed, particularly in tests of hypotheses using self-inventories or ones involving the operation of implicit theories.

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ABSTRACT

Three conceptual and statistical models are developed for the effects of social desirability (SD) response bias on organizational behavior research results. It is demonstrated with illustrative empirical examples how SD can act as a) an unmeasured variable which produces spurious correlations between study variables, b) a suppressor variable which hides relationships, or c) a moderator variable which conditions the relationship between two other variables. It is recommended that SD effects be assessed, particularly in tests of hypotheses using self-inventories or ones involving the operation of implicit theories.

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THE IMPACT OF SOCIAL DESIRABILITY ON ORGANIZATIONAL BEHAVIOR RESEARCH RESULTS: AN EMPIRICAL INVESTIGATION OF ALTERNATIVE MODELS

No progress accrues to any scientific discipline without adequate measurement. In the study of organizational behavior questionnaires are the most often used method of measuring constructs. The popularity of questionnaire measures is not surprising because they are relatively easy to use and inexpensive, and further, are the only plausible alternative for measuring unobservable constructs such as the attitudes of organizational participants (e.g., job satisfaction), individuals' values and preferences, their intentions (e.g., to quit their job), and their personalities (e.g., needs and traits). In addition, questionnaires are also commonly used to measure the perceptions of respondents regarding organizational factors (e.g., decentralization, formalization, and climate), job factors (e.g., task characteristics), work group characteristics (e.g., cohesiveness and group norms), role characteristics (e.g., role conflict and ambiguity), and the behavior of other organizational members (e.g., leadership style and job performance). In these latter questionnaires the perceptions of the respondents are what are measured; however, the purpose of the researcher is often to make inferences about what is being perceived rather than about the respondents.

In the use of any questionnaire measure there are a number of factors which can operate to lower its reliability and validity. The purpose of this study is to examine one of these factors--social desirability response bias. Social desirability was chosen for several reasons: (1) an increasing number of researchers feel that as a response style it may contaminate commonly used measures used in the field of organizational behavior, (2) investigators generally hold a too simplified model of the effects of social desirability response bias, and (3) social desirability contamination can serve both to mask true relationships and to produce spurious relationships. More specifically, this paper has the following objectives:

A) Develop conceptual and statistical models for the effects of social desirability;

B) Empirically demonstrate each of the conceptual and statistical models that we present, and

C) Reach tentative conclusions about the probable seriousness of social desirability response bias in organizational behavior research.

Models of Social Desirability Effects

Social desirability (SD) is generally viewed as a tendency for an individual to present him or herself, in test-taking situations, in a way which makes the person look positive with regard to culturally derived norms and standards. One interpretation of this tendency is that it represents one's propensity for faking, specifically, "faking to look good." Interest in this factor developed as early as the 1930's when researchers sought ways to detect dissimulators taking personnel selection inventories (Humm & Humm, 1944). It was reasoned that such a tendency in test-takers would lower the predictive validity of the tests. Crowne and Marlowe (1964) attribute this behavior to individual differences in need for approval. Nunnally (1978) broadens the scope of the construct further by suggesting that there is evidence that SD contains components of the person's level of psychological adjustment, his or her self-knowledge, as well as his or her level of frankness. Nunnally's view of SD clearly encompasses more than another commonly held view that SD is merely a response bias in large part elicited by the inventory items themselves. In this view SD is a contaminant which should be removed from any measuring instrument.

In the organizational research literature SD continues to be regarded as a source of response bias to be controlled or eliminated by the researcher. Additionally, there is evidence that a number of measures commonly used in organizational behavior research are "contaminated" by SD (Golembiewski & Munzenrider, 1975; Schriescheim, 1979). For example, Stone, Ganster, Woodman, and Fusilier (1979) recently examined the convergent validity of the Growth Need Strength (GNS) scales (Hackman & Oldham, 1975). They noted that two

versions (ostensibly parallel forms) of this widely-used measure were significantly correlated with an independent measure of SD. Stone et al. (1979) argued that such shared variance with SD suggested validity problems with the GNS scales. In another recent study Arnold and Feldman (1981) compared different methods of measuring self-ratings of the importance of different job and organizational characteristics in making job choices. They found that the more direct, or transparent, methods seemed to be more subject to SD bias than an indirect method. As did Stone et al. (1979), Arnold and Feldman argued that a relationship between a measure and SD constituted evidence that the measure "evokes a social desirability response bias" (p. 378), and that such "bias" threatens the validity of the measure. In general, it is not surprising that such self-inventories are subject to SD response bias. In fact, many scales of the MMPI, perhaps the most carefully developed and researched self-inventory extant, are significantly related to measures of SD (see Edwards, 1970, for an extensive discussion of this large body of research).

If we accept the proposition that a correlation between an inventory and SD means that the inventory is contaminated with response bias, then it is logical to explore the possible consequences of using such biased measures in organizational research. Below we present three alternative models of what these consequences could be.

The Spuriousness Model. In this first model it is posited that SD contamination can produce spurious observed correlations between variables. This outcome could occur, for example, if SD were correlated with both the independent and dependent variables of interest. An observed correlation between the independent and dependent variables, then, might be due to their shared variance in SD and not due to shared variance in the constructs that the measures purport to tap. Statistically, one tests for this effect by partialling SD from the independent and dependent variables, and noting whether the partial correlation is reduced to zero. One complication with this approach is that partialling underestimates the spuriousness effect when SD is measured with less than a perfectly reliable scale. A conservative approach would be to "correct" the zero-order

correlations for attenuation before computing the partial correlation. In practice, however, attenuation effects due to unreliability are fairly minor when reasonably reliable scales are employed.

It is this spuriousness model that most investigators implicitly endorse when they advocate the inclusion of a SD scale in research designs. However, despite this apparent general acceptance of the spuriousness model, rare are the cases when SD is actually incorporated into one's set of measures. In fact, even though the spuriousness model is a plausible one for the effects of SD response bias on research results, we know of no evidence demonstrating that any observed correlation between organizational variables was due to the spurious effects of SD.

The Suppression Model. This second model posits that SD response bias produces just the opposite effect as that proposed in the spuriousness model. That is, a real correlation between independent and dependent variables may go undetected because of SD contamination in one or both of the measures. Consider the following example. It is a common finding that self-inventories of effort or motivation (e.g., the internal motivation scale of the Job Diagnostic Survey) do not correlate with measures of actual performance. Now there are a number of reasons why we might find such a lack of correlation, one of which is that self-perceptions of motivation (even unbiased ones) are simply not related to actual job performance. Before we fail to reject this null hypothesis, however, we should consider other explanations for the lack of observed correlation (and perhaps preclude the commission of a Type II error). One such explanation is that the self-inventory of motivation is heavily contaminated by SD (a not implausible assertion) and this SD component, which has nothing to do with job performance, is masking the true relationship between motivation and performance. In this situation, partialling SD from both variables would change the relationship from zero to non-zero. This example, of course, is one of what has been termed "classical suppression" (Conger, 1974), and hence the reason for our naming this model thus. The "classical"

variety is not the only kind of plausible suppression effect, however (see Cohen & Cohen, 1975, pp. 87-91, for a general discussion of suppression). Suppose that the simple correlations between SD and the independent and dependent variables are positive and so is the correlation between the independent and dependent variables. Of course, this is the pattern of correlations that must exist in the spuriousness model. However, when the conservative researcher "controls for" SD by partialling, one finds that the partial correlation is bigger than the simple one. Thus, what at first glance looks like spuriousness is actually "net" suppression. In any given case the spuriousness and suppression models of SD effects are readily pitted against each other. One simply computes a multiple regression with both SD and the independent variable (X) in the equation. If the beta for X is zero, or just less than the simple correlation between X and Y, then the spuriousness model is correct. If the beta for X is bigger than the simple r (technically, outside the range of r and zero), then the suppression model is correct. Of course, the other alternative is that neither of these two models is correct. In that case, we would conclude that SD bias is simply not an important factor in the research. However, we think there is one more model that should be considered before the issue of SD response bias is dismissed as unimportant.

The Moderator Model. In this model SD may or may not be correlated with either the independent or dependent variables. The distinguishing feature of this model is the fact that there is an interaction effect between the independent variable and SD. The special case when SD is uncorrelated with both independent and dependent variables is what has traditionally been referred to as the moderator effect in the personnel selection literature (Saunders, 1956; Zedeck, 1971). We prefer a looser use of the term, however, in which a variable is considered a moderator whenever it conditions (i.e., interacts with) the relationship between two other variables.

We would reason that the moderator model of SD effects might operate when the research issue involved the operation of implicit theories (DeNisi & Pritchard, 1978;

Rush, Thomas, & Lord, 1977), especially when there is an implicit theory which a respondent considers "correct," and thus socially desirable to espouse. The operation of a socially desirable implicit theory, then, can elicit what Salancik and Pfeffer (1977) refer to as consistency effects. Consider the following example. An investigator wishes to test the hypothesis that a leader who uses contingent rewards will have more satisfied subordinates than one who does not use contingent rewards. She then has subordinates complete an inventory measuring the extent to which their leader uses contingent rewards, and a self-inventory measuring their level of satisfaction with their leader. Now suppose that in this population of subordinates people have been acculturated to accept the implicit theory that "good" leaders reward people on the basis of their performance. There is no particular reason to suspect that high SD respondents will be more likely to yield higher scores on either the leader behavior inventory or the satisfaction self-inventory, so a measure of SD turns out to be uncorrelated with them. Assume that the observed correlation between leader behavior and satisfaction is .30 and it is statistically significant. What are we to conclude? We might interpret this result to mean that there is a relationship between the two variables, but since it only accounts for nine per cent of the variance, it's only of modest interest. However, we would argue that the real relationship might be very different, perhaps even a significant negative correlation. Suppose that there was an interaction effect between the measure of leader behavior and SD such that, for people high in SD, the observed correlation is strong positive, while for people low in SD, the correlation is somewhat negative. For an "average" level of SD the relationship is moderate positive (i.e., $r = .30$). Obviously, the correlation between the measure of leader behavior and satisfaction is contingent on the respondent's level of SD. Letting significant interactions go undetected leads the investigator to make misleading interpretations about general main effects when the actual simple main effects paint a very different picture (Winer, 1971).

The Arnold and Feldman (1981) study, cited earlier, suggests another example of a moderating effect of SD. In their study they asked respondents to indicate, using various methods, the importance of different job factors. They reasoned that most people would find it socially desirable to indicate a preference for intrinsic factors rather than extrinsic sorts of factors such as pay and benefits. Now suppose that people were asked, instead, to evaluate the degree to which intrinsic and extrinsic factors were present on various jobs (variable X), and were then asked to indicate their preference for these jobs (variable Y). The findings of Arnold and Feldman (1981) and Stone et al. (1979), would suggest that a measure of SD would be uncorrelated with X and Y, but would moderate the relationship between X and Y.

To test whether SD is a moderator variable one tests for an interaction between it and any independent variable(s) of interest using product terms in hierarchical multiple regression (Cohen & Cohen, 1975). We should note that our use of the term moderator refers to interaction effects, and thus the non-interacting "homologizer" moderator variable recently described by Sharma, Durand, and Gur-Arie (1981) is not of interest in the present case (nor is its associated subgroup analysis technique). Two points regarding the assessment of SD moderating effects should be stressed. First, the partial correlation and regression method without interaction terms, used to test for the spuriousness and suppression models, will not uncover moderator effects. Secondly, when one partials a variable from any relationship one is actually performing an analysis of covariance (more generally, an analysis of partial variance, Cohen & Cohen, 1975). For such partialling to be valid one makes the assumption of homogeneity of regression, that is, that the regression of the covariate with Y is the same across all levels of X. To test this assumption one tests for an interaction effect between the covariate and X. Therefore, one should always test the moderator model of SD effects first, and if no interaction is found, then examine the regression results for evidence of spuriousness or suppression.

In summary, we have presented three models for how SD might affect research findings in organizational research. These three models produce very different outcomes and can grossly affect the substantive interpretation of any given research question. Further, the three models are mutually exclusive and are readily tested against each other, thus they form the basis for a strong inference strategy in research (Platt, 1964). Below we illustrate examples of each of these models as they operate in an actual empirical data set. Our intent is not so much to "document" the existence of such SD effects, but rather to demonstrate their occurrence in a data set composed of commonly used measures obtained from a sample fairly typical of those employed in much organizational research.

Method

Sample

As part of a larger study, data were collected from a total of 424 managerial and non-managerial employees in three diverse organizations. A brief profile of these organizations and employees follows:

Financial Institution. A representative sample of 257 employees from the highest to lowest levels, performing all functions, was taken from a relatively large financial institution. The median age was 36, 106 had completed college and 16 held graduate degrees. Median tenure with this organization was 8 years.

Manufacturing Plant. A representative sample of 87 employees from the highest to lowest levels, performing all functions, was taken from this medium sized plant. The median age was 36, 19 had completed college, and three had not completed high school. Median tenure with the firm was 10 years.

State Agency. A representative sample of 80 employees from the highest to lowest levels, performing all functions, was taken from a relatively large agency of state government. Median age was 35, 25 had completed college and 5 held graduate degrees. Median tenure with this agency was four years.

Measures

In order to illustrate the potential effects of SD on relationships among organizational variables, measures were chosen so as to represent individuals' self-reports of a) role characteristics (role conflict and ambiguity), b) others' behavior (leader descriptions), c) their needs, and d) their attitudes.

Each employee completed a packet of questionnaires while at work. Included in this packet were a) role conflict and ambiguity scales (Rizzo, House, & Lirtzman, 1970), b) leader behavior description scales from the Managerial Behavior Survey (MBS) (Yukl & Nemeroff, 1979), c) need for achievement, affiliation, autonomy, and power scales from the Manifest Needs Questionnaire (Steers & Braunstein, 1976), and d) satisfaction with pay, work, supervision, coworkers, and promotions from the Job Descriptive Index (JDI) (Smith, Kendall & Hulin, 1969). Finally, Social Desirability (SD) was measured with the Marlowe-Crowne scale (Crowne & Marlowe, 1964). The preceding are all relatively familiar measures in organizational research, with the possible exception of the MBS. The MBS was developed in an attempt to overcome criticisms of previously existing leadership measures and consists of 76 items intended to measure 19 categories of leader behavior, using 4 items per subscale. In the present study the subscales used were a) consideration, b) structuring reward contingencies, c) decision participation, d) goal-setting, and e) role clarification.

In summary, the variables measured in the present study represent some of the most commonly examined constructs in organizational behavior. For our purposes of illustrating the effects of SD, the JDI satisfaction scales were considered as dependent variables predicted by the leadership variables, needs, and role perceptions. The role perception variables were also considered as dependent variables predicted by leadership variables and needs.

Results and Discussion

Table 1 displays the means, standard deviations, reliabilities, and correlations with SD of all study variables. About a third of the scales were significantly correlated with SD. Given that self-descriptions tend to have a larger SD component than descriptions of others or others' behavior, it is not surprising to find that two of the MNO scales (nAut and nPow) are correlated with SD. Interestingly, though, the role conflict and ambiguity scales are also significantly contaminated by SD, with those high in SD showing a tendency to report less of both role stresses. Inspection of the wording of the conflict and ambiguity items, however, reveals that almost all the items are really self-descriptors (e.g. "I am uncertain as to how my job is linked."). Thus, the scales are probably best described as self-inventories, and as with other self-inventories, it would not be unusual to find SD contamination.

The rest of the analysis proceeded by examining the three SD models on each independent-dependent variable pair, using the regression methods described above. To conserve space, only those instances in which there were significant SD effects are illustrated.

Moderator Effects

In four relationships SD was found to have significant moderating effects, and these are displayed in Table 2. Two of these cases are examples of the "true" moderator model (Saunders, 1956; Zedeck, 1971) in that the simple correlations between SD and both the independent and dependent variables are not significantly greater than zero. This holds for case #1 (JDI Promotions and nAff) and case #3 (JDI Supervision and MBS structure). Examining the interactions, one finds that in the case of JDI Promotions, the effects of nAff become less positive with increases in the level of SD, and actually become negative at high levels of SD. For example, at SD=5 the raw regression weight for nAff is 12.31, while at SD=30 the nAff regression weight is -5.69. An investigator interested in the relationship between nAff and satisfaction with promotions might have concluded that they

were unrelated, while, in fact, they are positively related for low SD individuals and negatively related for high SD individuals. In a similar vein (case #3), SD might have been dismissed as irrelevant because it was uncorrelated with both independent and dependent variables. In fact, the relationship between structuring of reward contingencies and satisfaction with supervision is more positive for low SD individuals than for high SD individuals.

The case #2 moderating effect of SD on the nAut-satisfaction with work relationship is one in which SD is uncorrelated with the dependent variable but is correlated with the independent variable. Finally, case #4 is of some interest because here SD is correlated with both the independent and dependent variables yet significantly moderates the relationship between them.

Suppression Effects

Two cases were discovered in which SD acted to mask a relationship between two other variables. The first case involved the relationship between leader consideration and satisfaction with work. The simple correlation between these variables is not significant at $r=.07$. However, when SD is controlled the partial r between the variables is .13, which is significant at $p < .05$. In the case of leader decision participation and satisfaction with work, the correlation is increased from .13 to .18 when SD is partialled. While neither of these suppression effects is dramatic, an investigator, at least in the first case, would have concluded that no relationship existed when, in fact, one did exist but was obscured by SD contamination of the satisfaction with supervision scale.

Spuriousness Effects

Three cases were found which exhibited evidence that observed correlations between independent and dependent variables were, in part, attributable to shared variance in SD. The first case involved the relationship between leader role clarification and role conflict. The zero-order correlation between these scales was $-.20$ ($p < .01$), while the

partial r (controlling for SD) was -.14 ($p < .05$). The simple r was reduced somewhat but remains significant nonetheless. In the second case, partialling SD reduced the correlation between nAut and role conflict from .30 ($p < .01$) to .24 ($p < .01$). Not only does this effect appear minor, but, as discussed above, the primary role of SD in this relationship is really as a moderator variable. Finally, partialling SD reduced the correlation between nAut and role ambiguity from .17 ($p < .05$) to .10 ($p < .10$). While one might argue that this latter effect is a true demonstration of spuriousness because the partial correlation no longer meets an arbitrary level of significance (alpha =.05), the real effect of SD is in fact quite small.

Conclusions

Two conclusions seem warranted from this investigation. First, social desirability contamination effects do not seem terribly widespread. To support this conclusion, we would note that SD effects were examined in 73 different bivariate relationships in this study. By any standard, that represents quite a fishing expedition. However, only 9 cases were uncovered in which SD showed any evidence of influencing the observed relationship between two other variables. We would temper this conclusion a little bit by admitting that we did not systematically choose variables which would most likely be influenced by SD, but rather strove for a more "representative" sampling of variables. On a priori grounds, and consistent with our findings, those variables most likely to be affected by SD are self-inventories. We would recommend, then, that SD be assessed in those studies where the central hypotheses involve self-inventories, and this would include the use of such measures as self-reports of effort, motivation, performance, attributions of performance, etc.

Secondly, the empirical results are consistent with our statistical reasoning that when SD affects research findings, spuriousness is not the only, or even most likely result. In fact, the most common finding in our empirical examples is that of a moderate role for SD. In addition, in half of the moderator cases, SD was unrelated to either t

independent or dependent variable. To us this suggests that SD is of interest as a variable in its own right and not just as a source of bias in measurement. As noted earlier, SD may play a significant role in the operation of implicit theories, and in such cases would act primarily as a moderator variable.

In conclusion, social desirability can affect research findings in three different ways: a) to produce spurious results, b) to hide real results (suppression), and c) to moderate relationships. We illustrated how these effects can be assessed statistically and provided empirical examples of each of them with a not atypical assortment of variables. Since SD can be measured fairly reliably in less than 5 minutes of respondent time, we see no good reason why these three models should not be tested in any organizational behavior study. This assertion applies especially to those studies which incorporate self-inventory measures and those that test relationships in which an implicit theory might be operable.

References

Arnold, H.J. & Feldman, D.C. Social desirability response bias in self-report choice situations. Academy of Management Journal, 1981, 24, 377-385.

Cohen, J. & Cohen, P. Applied mutiple regression/correlation analysis for the behavioral sciences. New York: Wiley, 1975.

Conger, A.J. A revised definition of suppressor variables: A guide to their identification and interpretation. Educational and Psychological Measurement, 1974, 34, 35-46.

Crowne, D.P. & Marlowe, D. The approval motive: Studies in evaluative dependence. New York: Wiley, 1964.

DeNisi, A.S. & Pritchard, R.D. Implicit theories of performance as artifacts in survey research: A replication and extension. Organizational Behavior and Human Performance, 1978, 21, 358-366.

Edwards, A.L. The measurement of personality traits by scales and inventories New York: Holt, 1970.

Golembiewski, R.T. & Munzenrider, R. Social desirability as an intervening variable in interpreting OD effects. Journal of Applied Behavioral Science, 1975, 11, 317-332.

Hackman, J.R. & Oldham, G.R. Development of the job diagnostic survey. Journal of Applied Psychology, 1975, 60, 159-170.

Humm, D.G. & Humm, K.A. Validity of the Humm-Wadsworth temperament scale: With consideration of the effects of subjects' response-bias. Journal of Psychology, 1944, 18, 55-64.

Nunnally, J.C. Psychometric theory. New York: McGraw-Hill, 1978.

Platt, J.R. Strong inference. Science, 1964, 146, 347-353.

Rizzo, J.R., House, R.J. & Lirtzman, S.I. Role conflict and ambiguity in complex organizations. Administrative Science Quarterly, 1970, 15, 150-163.

Rush, M.C., Thomas, J.C., & Lord, R.G. Implicit leadership theory: A potential threat to the internal validity of leader behavior questionnaires. Organizational Behavior and Human Performance, 1977, 20, 93-110.

Salancik, G.R. & Pfeffer, J. An examination of need-satisfaction models of job attitudes. Administrative Science Quarterly, 1977, 22, 427-456.

Saunders, D.R. Moderator variables in prediction. Educational and Psychological Measurement, 1956, 16, 209-222.

Schriescheim, C.A. Social desirability and leader effectiveness. Journal of Social Psychology, 1979, 108 89-94.

Sharma, S., Durand, R.M. & Gur-Arie, O. Identification and analysis of moderator variables. Journal of Marketing Research, 1981, 18, 291-300.

Smith, P.C., Kendall, L.M. & Hulin, C.L. The measurement of satisfaction in work and retirement. Chicago: Rand-McNally, 1969.

Steers, R.M. & Braunstein, D.N. A behaviorally based measure of manifest needs in work settings. Journal of Vocational Behavior, 1976, 9, 251-266.

Stone, E.F., Ganster, D.C., Woodman, R.W. & Fusilier, M.R. Relationships between growth need strength and selected individual differences measures employed in job design research. Journal of Vocational Behavior, 1979, 14, 329-340.

Winer B.J. Statistical principles in experimental design. New York: McGraw-Hill, 1971.

Yukl, G.A. & Nemeroff, W.F. Identification and measurement of specific categories of leadership behavior: A progress report. In J.G. Hunt and L.L. Larson (Eds.), Crosscurrents in Leadership. Carbondale, Il.: Southern Illinois University Press, 1979.

Zedeck, S. Problems with the use of moderator variables. Psychological Bulletin, 1971, 76, 295-310.

Table 1
Descriptive Statistics

	M	SD	reliability	correlation[1] with SD
SD	17.2	6.24	.80	-
consideration (MBS)	3.9	.79	.86	.17**
structure (MBS)	3.4	.85	.76	.00
goal-setting (MBS)	3.1	1.02	.91	.00
participation (MBS)	3.0	.89	.89	.07
role-clarification (MBS)	3.5	.88	.90	.07
JDI pay	25.6	12.38	.76	-.02
JDI work	36.9	9.74	.76	-.03
JDI promotion	23.6	16.28	.88	.05
JDI coworkers	43.6	10.49	.82	.03
JDI supervision	38.9	8.38	.71	.08
role conflict	2.5	.77	.73	-.28**
role ambiguity	2.3	.83	.83	-.27**
nAch	4.0	.50	.65	.03
nAff	3.0	.49	.52	.10
nAut	2.6	.58	.63	-.28**
nPow	3.3	.86	.60	-.13*

[1]With listwise deletion of missing or incomplete cases, N=280.

* $p < .05$

** $p < .01$

Table 2
Illustrations of SD Moderator Effect

Dependent Variable	Independent Variable	B	t	R
Case #1: JDI Promotions	SD	2.19	2.13*	
	nAff	15.91	2.48*	
	SD x nAff	-.72	-2.13*	
	Intercept	19.35		.16
Case #2: JDI Work	SD	-.99	-2.07	
	nAut	-7.75	-2.49	.19**
	SD x nAut	.33	2.09*	
	Intercept	59.97		
Case #3: JDI Supervision	SD	.67	2.10*	
	structure	7.71	4.58**	
	SD x structure	-.16	-2.07*	
	Intercept	10.27		.49**
Case #4: Conflict	SD	-.10	-3.10**	
	nAut	-.16	-.74	
	SD x nAut	.03	2.37*	
	Intercept	3.37		.39**

* $p < .05$

** $p < .01$

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Psychologist
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Army Research Institute
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